

CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

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CHAPTER 2 PROPOSED ACTION AND ALTERNATIVES

2.1 INTRODUCTION

This chapter provides background information on Simplot's existing operations at the Smoky Canyon Mine, Simplot's Proposed Action, and alternatives to the Proposed Action. This includes alternatives that were considered and/or eliminated from detailed analysis, the No Action Alternative, and the Agency Preferred Alternative. The proposed changes to the mining operations of Panels F and G include addition of a conveyor system to transport ore from Panel F to the mill, modification of an existing lease to accommodate the expansion of the previously approved Panel G East ODA, increase of the on-lease disturbance area of the previously approved Panel G South ODA, utilization of a GCLL on Panel G, and implementation of on- and off-lease stormwater control measures related to the GCLL.

Alternatives considered in the EIS are based on issues identified by the BLM and the USFS, and comments received during the public scoping process. The alternatives were developed to reduce potential impacts associated with Simplot's Proposed Action. The Agency Preferred Alternative was identified by the Agencies after comparing predicted environmental impacts associated with all of the alternatives.

2.2 PROJECT HISTORY

2.2.1 Background

Simplot has been involved in phosphate mining in Southeastern Idaho since 1945. As described in **Section 1.1.1**, Simplot began extracting phosphate ore from deposits located on federal land at its Smoky Canyon Mine in eastern Caribou County, Idaho in 1984. The operation has included mining with standard open pit techniques in six mine panels (Panels A-F; mining of Panel G is authorized but has not yet commenced) and then concentrating the phosphate content of the ore in an onsite mill. The concentrate is pumped through a buried pipeline to Simplot's existing fertilizer manufacturing plant (Don Plant) in Pocatello, Idaho. Tailings from the Smoky Canyon milling operation are disposed in two on-site permitted tailings disposal ponds located on private land owned by Simplot.

2.2.2 Past Environmental Impact Reviews

There have been a number of environmental reviews conducted under NEPA for the Smoky Canyon Mine property and operations.

The first EIS for the Smoky Canyon Mine was prepared in 1981 by the U.S. Geological Survey, then in charge of administering phosphate mining, in conjunction with the USFS. This initial EIS was followed by numerous NEPA documents examining the environmental impacts of various components and expansions of the mine. Ultimately, mining of Panels A through E was authorized.

Leasing, lease modifications, and exploration activities in Panels F and G (also known as the Manning Creek and Deer Creek lease areas) were analyzed between 1994 and 2005 through several EA and EIS documents. Decisions based on these NEPA documents authorized the current leases and associated past exploration activities on these properties.

The mining of Panels F and G was authorized by the 2008 RODs issued upon the completion of the 2007 FEIS, which thoroughly evaluated potential effects on resources such as threatened, endangered, and sensitive species; water resources; IRAs; Native American concerns and treaty rights resources; as well as effects from selenium.

2.3 EXISTING OPERATIONS AND CERCLA STUDIES

2.3.1 Existing Operations

Figures 1.1-1 and 1.1-2 show the location and land ownership in and around the Smoky Canyon Mine. Section 2.3 of the 2007 FEIS contains detailed information about the Smoky Canyon Mine including descriptions of location, land ownership, facilities, mining operations, water management, mill and tailings operations, reclamation activities and mine closure, hazardous materials, petroleum management, hazardous waste, and safety.

The current Smoky Canyon Mine operations and facilities provide the infrastructure needed for mining Panels F and G. All necessary facilities, utilities, equipment, staff, and procedures are present and/or approved to recover the phosphate ore reserves in Panels F and G. The ore in the panels is readily accessible to the existing operations through the extension of the mining operation toward the south along the trend of the ore bodies. Mining currently underway in Panel F is being conducted as described in the 2007 FEIS, incorporating the environmental controls as described in Section 2.5 of that document. Ore is presently transported by haul trucks to the existing Smoky Canyon mill for beneficiation. Ongoing access to the operations for personnel and supplies is through the existing Smoky Canyon facilities.

The 2007 FEIS and 2008 BLM and USFS RODs authorizing mining of Panels F and G provide detailed information about that phase of mining activity. The 2008 RODs authorized the backfilling of Panel E with overburden from Panel F and the associated construction of the haul road between Panels E and F. Mining of Panel F commenced in 2009 and the initial overburden was backfilled into Panel E. Construction of the geologic store and release cover on Panel E was complete in 2013. Mining of Panel F is in progress (see following photo) and will continue for several years.

2.3.2 CERCLA Studies and Remediation

The CERCLA, legislated by Congress in 1980 and amended in 1986, was enacted to respond to pollution and the threats posed to human health and the environment resulting from the release, or imminent threat of a release, of Clean Water Act hazardous substances. CERCLA provides that the parties responsible for the pollution pay the costs to investigate and remediate contaminated sites, and that an orderly investigation is conducted.



Photograph of Mining at Panel F
(taken 10/29/13, looking southeast)

Beginning in 1996, livestock deaths associated with selenium poisoning were identified at a phosphate mine other than the Smoky Canyon Mine in Southeastern Idaho. The livestock deaths associated with selenium poisoning prompted response by the regulatory agencies, the phosphate mining members of the Idaho Mining Association, tribal agencies, and other stakeholders. In 2000, many of these parties entered into an Area-Wide Administrative Order on Consent (AOC) to further evaluate and address area-wide and site-specific human health and ecological risks related to past phosphate mining in Southeastern Idaho. Signatory agencies involved in the Area-Wide AOC include IDEQ, BLM, USFS, EPA, and Bureau of Indian Affairs (BIA). This agreement also included a process for separate AOCs at specific mining properties that would describe the approach to conducting site investigations (SIs) and Engineering Evaluations/Cost Analyses (EE/CAs) that would lead to removal actions necessary for remediation of environmental contamination from existing mining disturbances.

Concentrations of selenium in water sources in the vicinity of Smoky Canyon Mine began increasing in 1995, and this upward trend continued through testing reported in the 2007 FEIS. Simplot entered into AOCs for the Smoky Canyon Mine with federal and state agencies. The subsequent SI determined that selenium and other hazardous substances are being released from portions of the Smoky Canyon Mine into the environment. The SI found that rock mined as overburden provided the sources for releases. Most of these mine facilities were constructed prior to the discovery of selenium releases. Since discovery, mining companies and the regulatory oversight agencies have worked to understand release mechanisms and to develop best management practices to prevent releases.

The Agencies continue to work with Simplot to remediate selenium issues at the Smoky Canyon Mine. The EE/CA for Smoky Canyon Mine (Panels A, B, C, D, and E and their associated mining operations) was written in May 2006. Part 1 of Appendix 2A of the 2007 FEIS addressed the findings of the SI with regard to the Pole Canyon ODA contribution to increased selenium levels in Hoopes Springs and Sage Creek, and proposed removal action efforts. A separate report included in Part 2 of Appendix 2A addressed the reclamation and other actions proposed for the Panel E operations to reduce selenium concentrations at South Fork Sage Creek Springs. The CERCLA removal action specified for the Pole Canyon ODA was initiated in the fall of 2006.

Any potential water quality impacts related to the Smoky Canyon Mine are currently under CERCLA investigation. As of the writing of this EIS, the Smoky Canyon Mine is currently the subject of an Administrative Settlement Agreement and Order on Consent/Consent Order for Remedial Investigation/Feasibility Study (RI/FS) entered into by Simplot and the USFS, EPA, and IDEQ. The USFS is the lead agency, and the EPA, USFWS, BLM, IDEQ, and the Shoshone-Bannock Tribes have elected to participate as support agencies. The RI component is intended to document the nature and extent of contaminants (primarily selenium) at the Smoky Canyon Mine, as well as to determine the potential for, or implications of, release of those contaminants. The FS component is intended to evaluate various means to prevent, mitigate, or remedy such contamination. Formation Environmental (2014) issued a Revised Draft RI/FS Report (RI/FS Report) that (1) presents and summarizes data collected to date, (2) describes the fate and transport of contaminants using selenium as an indicator, and (3) presents key findings that will influence the direction taken in remediation plans. Appropriate future remedial actions will be determined based on the findings of the remedial investigation currently underway.

While remediation actions have been taken and will continue into the future for the Smoky Canyon Mine, they have no bearing on the previously approved mining operations at Panels F and G. Further, the mining of Panels F and G has no connection to existing water quality impacts at Smoky Canyon Mine that is currently under investigation because the South Fork of Sage Creek drainage, which essentially separates Panels F and G (to the south) and Panels A through E (to the north), is the low point for both areas and groundwater flows converge to this low point from both directions. For these reasons, this EIS will focus solely on the proposed mine and lease modifications for Panels F and G described in **Section 2.4**. However, a discussion on the potential cumulative impacts to groundwater will be addressed in this EIS in **Chapter 5**, as there would be a cumulative connection where the surface water from both areas converge.

2.4 PROPOSED ACTION

The Proposed Action consists of five distinct components:

- Modification of the existing M&RP to allow construction and operation of an ore conveyor system between Panel F and the mill,
- Modification of Lease IDI-01441 by 280 acres to accommodate the 160-acre expansion of the previously approved East ODA (Panel G),
- Increase of the on-lease disturbance area of the previously approved South ODA (Panel G) by 20.0 acres for the temporary storage of chert to be used for eventual reclamation of the Panel G pit,
- Utilization of a GCLL instead of the currently approved geologic store and release cover over the in-pit backfill and the East ODA (Panel G), and

- Implementation of on- and off-lease stormwater control measures associated with the GCLL.

2.4.1 Modification of M&RP to Allow Use of an Ore Conveyor System between Panel F and the Mill

Under the Proposed Action, the approved M&RP for Panels F and G would be modified to allow for construction and use of a 4.5 mile long ore conveyance system between Panel F and the existing mill, generally following the existing haul road. The conveyor system would replace the use of haul trucks to deliver ore from Panels F and G to the mill. The approved west haul road between Panel G and Panel F, currently in construction, would be used to haul ore mined from Panel G to the conveyor at Panel F for transport to the mill.

2.4.1.1 Background

The 2007 FEIS considered a conveyor system from Panel F to the mill as a transportation alternative but eliminated the alternative from detailed analysis. The Panel F ore conveyor system would have precluded backfilling of Panel E with overburden from Panel F. This would have required utilization of a larger external overburden site to dispose of the Panel F overburden than other alternatives considered, with associated greater environmental impacts. As configured at the time, the Panel F conveyor system would also have increased the capital costs for the Project.

One of the transportation alternatives (No. 6) that was analyzed in the 2007 FEIS was a 6.1 mile long conveyor system to transport ore from Panel G north to Panel F and then to the mill. The portion of that particular route between Panel F and the mill is generally the same area as that included in the current Proposed Action. The portion of that route from Panel G north to Panel F is no longer feasible due to the designation of that area under the Idaho Roadless Rule.

2.4.1.2 Description of Ore Conveyor System

The proposed Panel F ore conveyor system would be approximately 4.5 miles long, originating at the northern end of Panel F and terminating at the mill (**Figure 2.4-1**), following the haul road to the extent possible. Under the Proposed Action, ore from Panels F and G would be transported to a stockpile at the north end of Panel F and loaded onto the proposed conveyor. This operation would be located near the northern end of Panel F Lease IDI-27512 and situated within the disturbed and mined out northern portion of Panel F.

The Panel F ore conveyor system would include a 25 kilovolt (kV) distribution power line secured to the conveyor structure to supply power for control and communications. The entire length of the conveyor would be covered with a hood designed to protect the conveyor and cable tray running the length of the conveyor.

The conveyor would be supported on ground modules or elevated frames (referred to as support bents), and portions would be constructed in underground culverts or elevated to create “crossings.”

Pipe Conveyor

Conventional conveyors carry materials, such as ore, along a flat or trough-shaped conveyor belt between a beginning point where the materials are loaded, and an ending point, where materials are collected. The Panel F ore conveyor system included in the Proposed Action is a pipe conveyor, in which the conveyor belt is rolled to form a pipe that would prevent material spillage along the conveyor route (see **Figure 2.4-2**).

Ground Module Supports

The majority of the Panel F ore conveyor system would be mounted on approximately 4,100 ground modules spaced generally at six foot intervals, closer together at some curves (see **Figure 2.4-2**). The ground modules would sit on either standard eight-foot long concrete or wooden railroad ties, which would sit on grade to maintain proper conveyor alignment. The centerline of the return belt located on the bottom of the ground module would be three feet above grade. The conveyor would have a continuous guard along each side of the conveyor, starting at the top of the concrete or wooden railroad tie and go to the bottom of the hood cover. The top of the hood cover would be approximately seven feet above grade and the conveyor would be about three feet wide.

Elevated Frame Supports

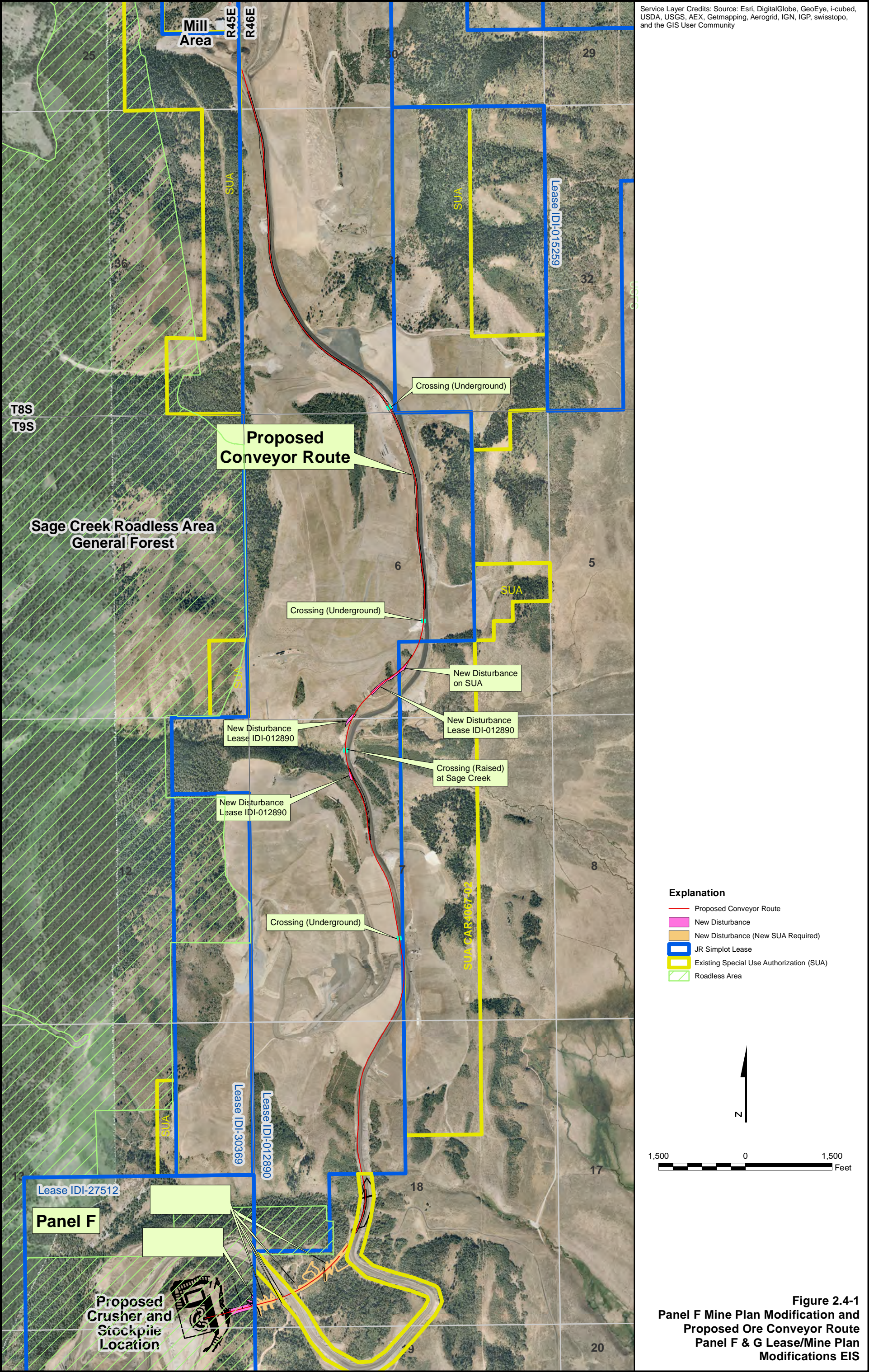
The portion of the Panel F ore conveyor system in the South Fork Sage Creek drainage area would be constructed on elevated frames (see **Figure 2.4-2**). In this area, the conveyor would be elevated on 16 support bents spaced at 120-foot intervals. The support bents would range in height from approximately 15 feet to 73 feet, with an average height of just over 45 feet (**Table 2.4-1**). Support bents would be constructed on concrete footings. The total distance for the 16 spans (**Figure 2.4-3**) of elevated conveyor would be approximately 1,920 feet. Along this elevated portion of the route, the conveyor would be enclosed on the top and both sides, and include a walkway for access for operations and maintenance purposes.

Table 2.4-1 Support Bent Heights by Span

SPAN NUMBER - APPROXIMATE BENT HEIGHT	SPAN NUMBER - APPROXIMATE BENT HEIGHT	SPAN NUMBER - APPROXIMATE BENT HEIGHT	SPAN NUMBER - APPROXIMATE BENT HEIGHT
Span #1 = 15 feet	Span #5 = 73 feet	Span #9 = 23 feet	Span #13 = 62 feet
Span #2 = 39 feet	Span #6 = 58 feet	Span #10 = 33 feet	Span #14 = 46 feet
Span #3 = 58 feet	Span #7 = 49 feet	Span #11 = 47 feet	Span #15 = 30 feet
Span #4 = 73 feet	Span #8 = 35 feet	Span #12 = 64 feet	Span #16 = 17 feet

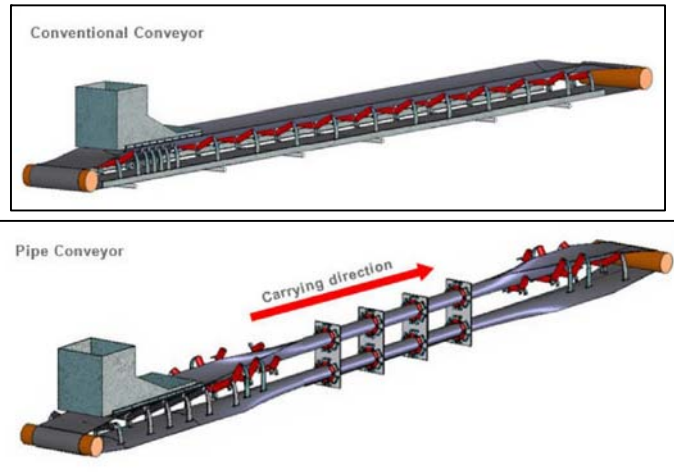
*Span #1 begins at the northern portion of Panel F and is the western most bent and Span #16 is the eastern most bent.

Approximated heights are based on aerial survey and may vary upon completion of ground survey.



Conveyor Design

Conventional conveyors carry materials, such as ore, along a flat or trough-shaped conveyor belt between a beginning point where the materials are loaded, and an ending point, where materials are collected. The conveyor system that would be part of the Proposed Action is a pipe conveyor, in which the conveyor belt is rolled to form a pipe that would prevent material spillage along the conveyor route.



Conveyor Route Preparation

The conveyor route would be graded like a road, to have smooth grade transitions and curves. Conveyors can operate on steeper slopes than haul trucks, so cuts and fills along the conveyor route are less than for a haul road. The conveyor would be supported on concrete or wood ties.



Ground Modules

The majority of the conveyor would be mounted on ground modules spaced generally at six foot intervals, closer together at some curves.



Elevated Segments

The portion of the conveyor system in the South Fork Sage Creek drainage area would be constructed on elevated frames spaced at 120-foot intervals and ranging in height from 15 feet to 73 feet, with an average height of just over 45 feet.



Note: Photos are examples of similar conveyor systems.
Photos provided by Simplot and Conveyor Dynamics, Inc.

Figure 2.4-2
Conveyor Characteristics
Panel F & G Lease/Mine Plan Modifications EIS

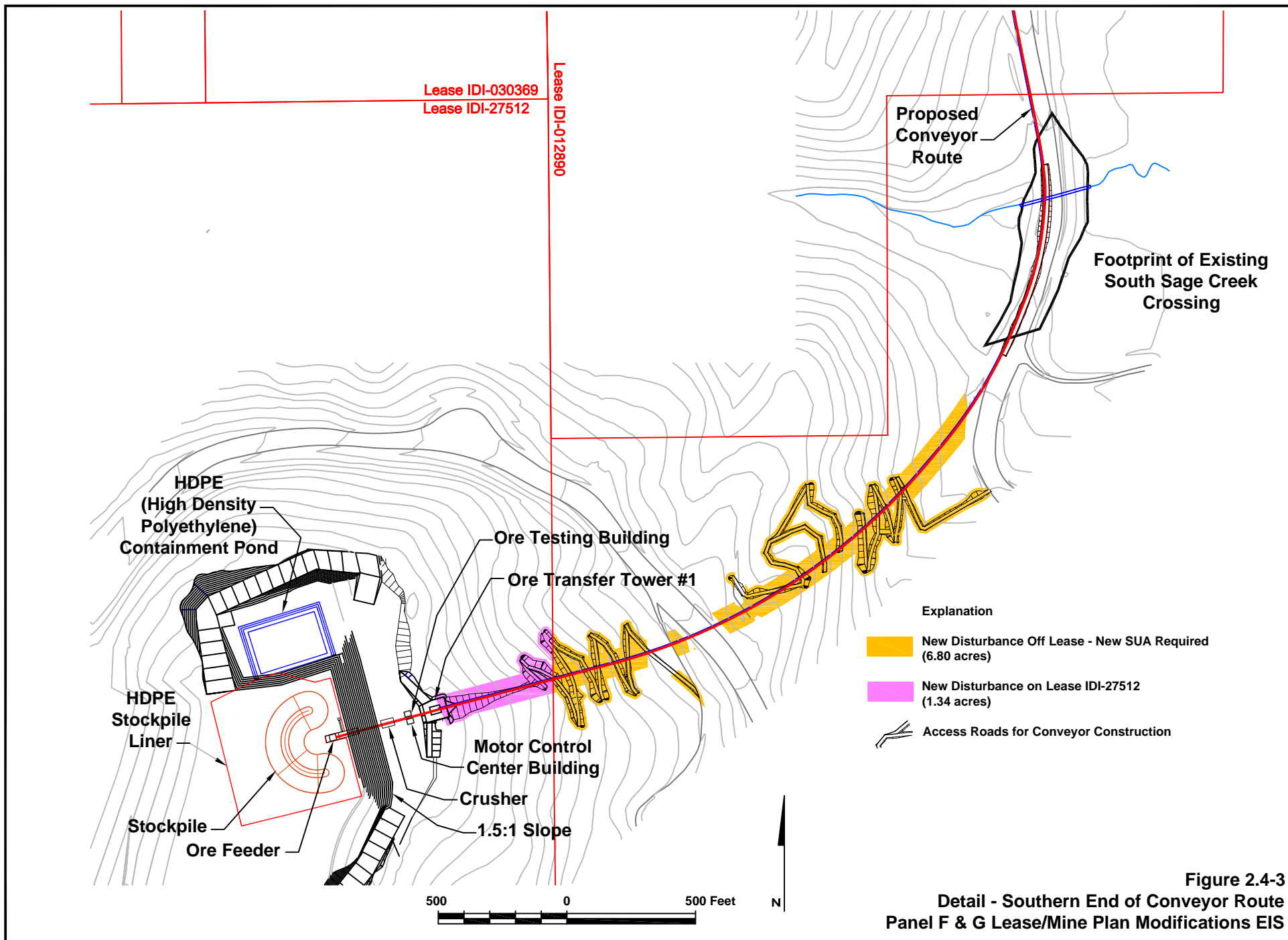


Figure 2.4-3
Detail - Southern End of Conveyor Route
Panel F & G Lease/Mine Plan Modifications EIS

Crossings

Four crossings for mine traffic and wildlife would be created along the proposed Panel F ore conveyor system route (**Figure 2.4-1**). Three of these crossings would be constructed underground at locations on the existing haul road. These crossings would each be approximately 100 feet wide and constructed with either a precast concrete culvert or a multi-plated archway to contain the conveyor. This would provide structural integrity for safe passage of mine equipment over the conveyor at the crossing locations. The conveyor would be supported by ground modules within the culvert.

One crossing would be elevated and located where the existing haul road crosses Sage Creek (**Figure 2.4-1**). In this location the proposed conveyor system would be constructed on elevated frame supports, which would raise the conveyor 8 to 10 feet above the haul road, allowing wildlife and horseback riders to pass beneath the conveyor.

Conveyor System Route

The primary design goal for the Panel F ore conveyor system alignment was keeping the conveyor located along the haul road where feasible to minimize cut and fill disturbances.

Pipe conveyor technology tolerates more curves and smaller curve radiuses than other conveyor technology, and allows for the conveyor to curve both horizontally and vertically. However, the maximum allowable concave, convex, and horizontal curve radiuses limit the conveyors ability to be constrained in all locations to the footprint of the existing haul road. Designing the best alignment for the conveyor is very challenging in that when the alignment of one section is changed, the alignments in all adjacent sections are impacted and have to be adjusted. Additionally, the allowable curves change with the type of belting used, travel speeds, width of belting (e.g., diameter of the pipe), loads, and temperatures.

While every effort was made to design the ore conveyance system to follow the existing haul road, there was no feasible way to design the Panel F ore conveyor system to follow the haul road off-lease east of Lease IDI-27512 and south of Lease IDI-012890 because of the steep downhill grade, tight horizontal curves, and distance away from the drive system for the conveyor. A SUA would be required for the conveyor in areas that would be off-lease and not previously authorized under an SUA (**Figures 2.4-1 and 2.4-3**).

All disturbance along the Panel F ore conveyor system route would be long-term. Approximately 450 feet of the proposed conveyor would be constructed within the Sage Creek IRA, resulting in up to 1.3 acres of long-term disturbance.

Changes to the Haul Road and Hauling Operations Associated with the Conveyor

Because the Panel E pit is now completely backfilled, the full width of the haul road between Panels F and E is no longer needed for hauling overburden. Placement of the Panel F ore conveyor system within the footprint of the existing haul road would still allow for safe travel of haul trucks and other mine equipment.

The creek crossings for the haul road have already been permitted with Section 404 Clean Water Act permits and are fully mitigated, and as such they cannot be changed without the potential for additional permitting. The Panel F ore conveyor system route was designed to avoid any additional impacts to the creeks and further permitting considerations. Therefore, these crossing locations were utilized as anchors in the conveyor alignment; the remainder of the conveyor

alignment was designed around the crossing points. The existing creek crossings would not be widened, which would restrict vehicle travel to one lane at the creek crossings, with a minimum running surface for equipment of approximately 40 feet. Aside from the creek crossings, a minimum of 80 feet of running surface would be maintained on the haul road and no widening of the existing haul road is proposed or needed.

Other Infrastructure, Lighting, Conveyor Operation, and Emissions

Stockpile and Containment Pond. The M&RP for Panel F would be modified to allow for development of an ore stockpile located within the footprint of the mined out north end of Panel F. The stockpile would contain a maximum of 140,000 tons of ore at any one time. The stockpile and point at which the ore would be loaded onto the ore conveyor system (ore feeder) would be located within a 250,000 square-foot area, and would be underlain by a protective liner (**Figure 2.4-3**). The liner, a high density polyethylene (HDPE) geomembrane, would be placed a minimum of 5 feet below the active working surface of the stockpile area to protect the liner system. A cushion layer (e.g., a geotextile or finely screened sand or gravel layer) would be placed directly above and below the liner as needed to prevent any damage to the liner during construction and operation. The material between the upper cushion layer and active working surface would be crushed and screened chert or limestone.

The 250,000 square-foot area would be sloped to manage drainage. Runoff would be directed to a HDPE-lined pond, which would be located north of the stockpile and designed to handle a 100-year, 24-hour storm event. The pond capacity would be 18.3 acre-feet and constructed to have a large surface area to allow for evaporation. Because the pond is designed to dry up every summer, the pond design includes two evaporation misters. While one mister would be sufficient to aid in evaporation, two would be installed to ensure that all accumulated water is evaporated before freezing conditions occur, and that full capacity of the pond would be available going into the winter. The stockpile and containment pond disturbance would be within a previously disturbed area and would not result in new disturbance.

Ore Testing Building and Motor Control Center. The proposed M&RP modification would also allow for an ore testing building and motor control center (MCC) to be constructed at the south end of the Panel F ore conveyor system (**Figure 2.4-3**). The ore testing building would be used to conduct ore sizing analyses. The MCC would provide the power and electrical instrumentation for the conveyor. These buildings would be fabricated off site and placed on concrete pads. Electrical service to these buildings would be supplied via the 25kV distribution power line affixed to the conveyor, but there would not be plumbing for water supply. The ore testing building and MCC disturbance would be within a previously disturbed area and would not result in new disturbance.

Transfer Towers. The two transfer towers for the Panel F ore conveyor system would be located at the beginning and ending points of the ore conveyor route within buildings or an enclosed tunnel. Transfer Tower 1, located at the Panel F loading point, would be approximately 40 feet tall. Transfer Tower 2, located near the mill where ore would be offloaded from the conveyor, would be approximately 50 feet tall.

Access Roads. New access roads for construction, operation, and maintenance of the Panel F ore conveyor system on Lease IDI-27512, east of the MCC; and off lease south of Lease IDI-012890 (**Figure 2.4-3**) would need to be constructed. An SUA would be required for the off lease area as previously described in this section. These access roads would result in approximately 1.3 acres

on lease and 6.8 acres off lease of long-term disturbance as they would remain open for future maintenance activities. Of the 8.1 total acres of long-term disturbance, 1.3 acres would be on lease within the Sage Creek IRA.

Lighting. Lighting would be installed at the following conveyor features:

- Inside the enclosed, elevated section,
- On Transfer Towers 1 and 2,
- Within the three underground crossings, and
- Along the overland portion at 500-foot intervals.

Conveyor Operation. Based on the mine's budgeted production rate and the Panel F ore conveyor system design, the conveyor would operate year-round, 24 hours a day, approximately three days per week. However, particularly during wet, freezing weather, the conveyor may need to operate more in order to avoid freezing up, which could create maintenance issues.

Drives. The Panel F ore conveyor system would be operated by three 1,250 horsepower motors at the end of the conveyor near the mill, and one 1,250 horsepower motor at the Panel F end of the conveyor. Noise would be generated by the drives operating the conveyor (approximately 85 decibels-A weighted (dBA)) and by rotating equipment (idlers) along the length of the conveyor (less than 55 dBA).

2.4.1.3 Benefits of the Conveyor System

In addition to increased efficiency in the mining operation, implementation of the Panel F ore conveyor system would alleviate the need to operate approximately six haul trucks between Panel F and the mill. This would result in a reduction of emissions produced by vehicles and equipment associated with the mining operation, as well as fugitive dust created by these vehicles operating on haul roads.

2.4.1.4 Disturbance Associated with the Proposed Conveyor System

Total new surface disturbance that would be associated with the proposed Panel F ore conveyor system is provided in **Table 2.4-2**.

**Table 2.4-2 New Surface Disturbance
Associated with the Proposed Conveyor System**

LEASE/SPECIAL USE AUTHORIZATION	NEW LONG-TERM DISTURBANCE (ACRES)
On Existing Leases	1.3
Off Lease	6.8*
TOTAL	8.1
Disturbance within the Sage Creek IRA	1.3

*6.8 acres would require a new SUA

2.4.1.5 Operation and Maintenance of the Conveyor System

The proposed Panel F ore conveyor system would be expected to have routine operation and maintenance requirements consistent with other mechanical equipment. The portion of the conveyor that would be located along the haul road would be accessed via the haul road for any repairs or maintenance required. Maintenance or repair on the portion of the system located off-lease and permitted by SUA would be accessed via new access roads (**Figure 2.4-3**).

2.4.2 Modification of Lease IDI-01441 for Expansion of the East ODA

2.4.2.1 Background

Simplot's original 2003 proposed M&RP included disposing of run of mine (ROM) overburden for Panel G on-lease in two ODAs on the east and southwest side of Panel G. Subsequent environmental analysis indicated seleniferous overburden stored in the southwest location had the potential to contaminate groundwater and impact a nearby spring, so Simplot modified their proposal in 2005 to store only non-seleniferous material in that location and place the seleniferous overburden in the East ODA. Because the current lease boundary for Panel G is closely limited to the ore body and not large enough to allow for both maximum ore recovery and for ODAs sufficient to accommodate all the overburden, Simplot is proposing to modify Lease IDI-01441 to expand the East ODA for permanent disposal of the Panel G overburden.

The 2007 FEIS analyzed the potential impacts of increasing the lease area by 18 acres of USFS-administered lands to accommodate the seleniferous ODA. However, BLM regulations at 43 CFR 3510 in effect at the time the 2008 RODs were issued did not allow for the modification of a lease for the purpose of permanently disposing of overburden. In addition, permanent disposal of overburden off lease did not meet the requirements and criteria contained in USFS regulations at 36 CFR 251.54(e) (ix) for approval of a USFS SUA. The 2008 RODs required Simplot to keep disposal of all overburden on-lease; however, the BLM ROD recognized the potential for future consideration of off-lease overburden disposal:

“...the impacts of the off-lease overburden storage were analyzed in the FEIS and if regulations change in the future, a separate decision could be considered at that time by both agencies. Otherwise, Simplot will have to submit a revised dump design for BLM and FS consideration prior to construction of Panel G.”

2.4.2.2 Regulations Governing Lease Modifications

In 2009, BLM promulgated revised regulations (43 CFR 3510) that allow the modification of a lease for purposes of permanent disposal of overburden materials, if specific criteria are met. Regulations at 43 CFR 3510, Leasing of Solid Minerals other than Coal and Oil Shale, require that the following three criteria be met to allow for modification of a lease:

1. *The acreage to be added does not contain known deposits of the same mineral deposit.* Simplot's exploration and development drilling adjacent to the proposed lease modification area confirms the acreage that would be affected by the proposed East ODA expansion does not contain developable phosphate.
2. *The adjoining acreage would be used for surface activities that are necessary for the recovery of the mineral deposit on the original federal lease.* The East ODA expansion

area is necessary to accommodate ROM overburden that would be generated by full development of Panel G.

3. *Had the acreage been included in the original federal lease at the time of that lease's issuance, the original federal lease would have been reasonably compact.* The proposed lease expansion area is directly contiguous with Lease IDI-01441, resulting in an expanded and compact lease area.

2.4.2.3 Description of Proposed Lease Modification

The BLM's leasing regulations at 43 CFR 3403.36 state, "Generally a quarter-quarter section, a lot or a protraction block in the smallest subdivision for which you may apply [for a lease]. The lands must be in reasonably compact form." In following that direction, Simplot has proposed to enlarge Lease IDI-01441 by 280 acres; the disturbance currently proposed within that area is 131 acres for the East ODA (see **Section 2.4.2.4**) and eight acres for stormwater features (see **Section 2.4.5**), for a total of 139 acres. The current lease area for Panel G is not large enough to allow for maximum ore recovery and the necessary overburden disposal via pit backfilling due to existing topography constraints, re-handling issues, and safety concerns when disposing of overburden within the singular Panel G configuration. (It should be noted that approximately 70 acres of disturbance within the proposed 280-acre lease modification are currently authorized under a USFS SUA for a topsoil stockpile and access road as per the 2008 USFS ROD.) Any future disturbance beyond that currently approved and/or proposed by Simplot for the East ODA expansion and stormwater features would require additional and specific analysis under NEPA.

The proposed modification to the lease would occur within Township 10 South, Range 45 East, Boise Meridian, Idaho, and specifically:

SW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 3

W $\frac{1}{2}$ SE $\frac{1}{4}$ Section 3

SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 3

N $\frac{1}{2}$ NW $\frac{1}{4}$ Section 10

NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 10

2.4.2.4 Proposed Increase in East ODA Disturbance Area

With modification of Lease IDI-01441, the East ODA would be expanded by 131 acres. This would result in a larger seleniferous footprint (i.e., a term used to describe the area of overburden that contains selenium-bearing materials) from what was analyzed by the 2007 FEIS. In addition, a portion of the area within the proposed lease modification area authorized for the topsoil stockpile and access road (**Section 2.4.2.3**) would eventually become part of the seleniferous footprint (see **Section 2.4-4**). Approximately 75 acres of the proposed new disturbance would be within the Sage Creek IRA within the General Forest, Rangeland, and Grassland theme under the Idaho Roadless Rule.

2.4.3 Proposed Increase in South ODA Disturbance Area

The 2008 RODs approved 96 acres of disturbance on the southwest side of Panel G, referred to as the South ODA. Approximately 22 acres of that total were for Dinwoody Formation material borrow areas and 74 acres were for storing non-seleniferous chert overburden removed prior to mining of Panel G and intended for use in final reclamation. Because the ROD approved the South ODA for chert only and not ROM as originally proposed by Simplot in 2003, Simplot had to reevaluate the mining sequence for Panel G to maximize backfill and minimize the size of the East ODA. Simplot determined mining Panel G from south to north would meet these objectives; however, this change would require an additional 20.0 acres of temporary chert storage in the South ODA. If this proposed expansion of the South ODA is approved, the South ODA would ultimately encompass approximately 116 acres.

During reclamation of the Panel G pit, the material stored in the South ODA would be used for backfill. The South ODA would be reclaimed and covered with a topsoil cap.

Approximately 19.4 acres of the increase in on-lease disturbance for chert storage in the South ODA would be within the Meade Peak IRA (General Forest, Rangeland, and Grassland theme).

2.4.4 Proposed GCLL

2.4.4.1 Background

The 2007 FEIS planned for mining Panel G as one large pit. Overburden generated from mining Panel G was planned to be largely used as backfill in the Panel G open pit, with excess overburden permanently placed in ODAs.

Scoping for the 2007 FEIS identified concerns over potential groundwater impacts from infiltration of precipitation into seleniferous overburden, which could then percolate out the bottoms of the overburden fills and eventually enter and contaminate the groundwater beneath these sites. In order to address these concerns, a number of alternatives were evaluated by the 2007 FEIS including Simplot's proposal to utilize a geologic store and release cover to reduce infiltration and water quality impacts to allowable levels. This geologic store and release cover was predicted to limit infiltration of meteoric water into the overburden fill and result in compliance with surface and groundwater standards for selenium. This cover, analyzed as Alternative D of the 2007 FEIS, was subsequently part of the Selected Alternative presented in the 2008 RODs and is the currently approved geologic store and release cover for Panels F and G. Current monitoring and assessment of the geologic store and release cover indicates that it will function as intended to reduce infiltration to meet surface and groundwater standards.

The 2007 FEIS also considered evaluation of a synthetic cover as an alternative. Synthetic covers, such as GCLLs, reduce overall infiltration rates to a greater degree than the approved geologic store and release cover, which in turn could provide more protection from potential selenium contamination. The use of a synthetic cover on top of overburden was dismissed from further consideration in the 2007 FEIS as economically unfeasible. Since that time, synthetic covers have been proposed, carefully evaluated, and approved for use at other phosphate mining and remediation sites, including the Blackfoot Bridge Mine and supplemental reclamation work at the South Rasmussen Ridge Mine.

2.4.4.2 Description of the Proposed GCLL

Overview

Under the Proposed Action, all seleniferous overburden in Panel G would be covered with a GCLL in an effort to further reduce or eliminate water quality impacts due to increasing the size of the currently approved mine. Approximately 392 acres in Panel G would be covered with a GCLL, including the in-pit backfill and the East ODA (**Figure 2.4-4**). The proposed GCLL cross section is diagrammed in **Figure 2.4-5** and detailed drawings (Geosyntec 2013a) are included in **Appendix 2A**.

The GCLL cover would be constructed on a maximum of 3 horizontal to 1 vertical slope, with slope lengths up to 2,075 feet. The cover would be constructed in phases dependent on the mining operations.

The GCLL consists of a layer of bentonite clay inserted between two geotextile layers. A geotextile is a woven sheet material that is resistant to penetration damage. The top geotextile layer would be laminated with a 20-millimeter textured HDPE geomembrane layer, which would provide an additional layer of protection against desiccation and ion exchange degradation.

Minimum roll width for the geotextile fabric would be 14 feet. Adjoining sheets of geotextile fabric would be overlapped by a minimum of 12 inches in accordance with the manufacturer's recommendations. During construction of the GCLL, should the geotextile layer be torn, the layer would be repaired by placing a patch over the defect. The patch would overlap the edges of the defect by a minimum of two feet in all directions and secured with a manufacturer recommended water-based adhesive; the patch would not be nailed or stapled.

The bentonite component of the GCLL is dry when manufactured, and becomes hydrated by contact with natural moisture present in the surrounding materials. When hydrated, the bentonite swells, and the voids and spaces between the bentonite granules close. This swelling allows the GCLL to attain low permeability.

Synthetic geotextiles are made of stabilized polymers resistant to long-term degradation. Studies have shown that the HDPE liners of the GCLL have lifetimes of at least several hundred years (Rowe and Sangam 2002 in Geosyntec 2013b) and the natural and synthetic components of a geo-synthetic clay liner will likely uphold hundreds of years under normal cover application conditions (Hsuan and Koerner 2010 in Geosyntec 2013b).

In preparation for installation of the GCLL, the ROM overburden would be overlain with a prepared subgrade surface consisting of earthen material that is smooth-drum rolled and inspected for desiccation cracks, protrusions, depressions, and rocks (which may damage the overlying GCLL). The depth of the subgrade would vary.

The GCLL would be overlain with a 6-inch drainage layer of crushed chert or limestone. The drainage layer would be covered with a filter fabric that would separate the drainage layer from the overlying soils to prevent blinding or clogging of the drainage aggregate layer. A 12-inch layer of Dinwoody Formation material would be placed on top of the filter fabric and drainage layer. The Dinwoody Formation is a stratigraphic unit in the overburden of the mine panels that consists of interbedded clay, shale, and siltstone. Excavated Dinwoody Formation material is known through experience at the Smoky Canyon Mine to sometimes contain soft earthlike material that may be suitable for construction purposes and could act as a low-permeability

barrier when compacted (BLM and USFS 2007). The final or uppermost portion of the GCLL cover would be a 12-inch later of topsoil, resulting in a total cover thickness above the GCLL of at least 2.5 feet (Geosyntec 2013a).

The Dinwoody Formation material is an important component of the cover system and would provide benefits for storage of meteoric water for vegetation growth, as well as the benefit of a lower hydraulic conductivity material that would limit the net percolation of water that now would be further mitigated by the GCLL. The topsoil and Dinwoody material, both which would be salvaged during initial site disturbance, would act as a growth medium and retain water to encourage plant growth and protect the drainage and GCLL layers (Geosyntec 2013a).

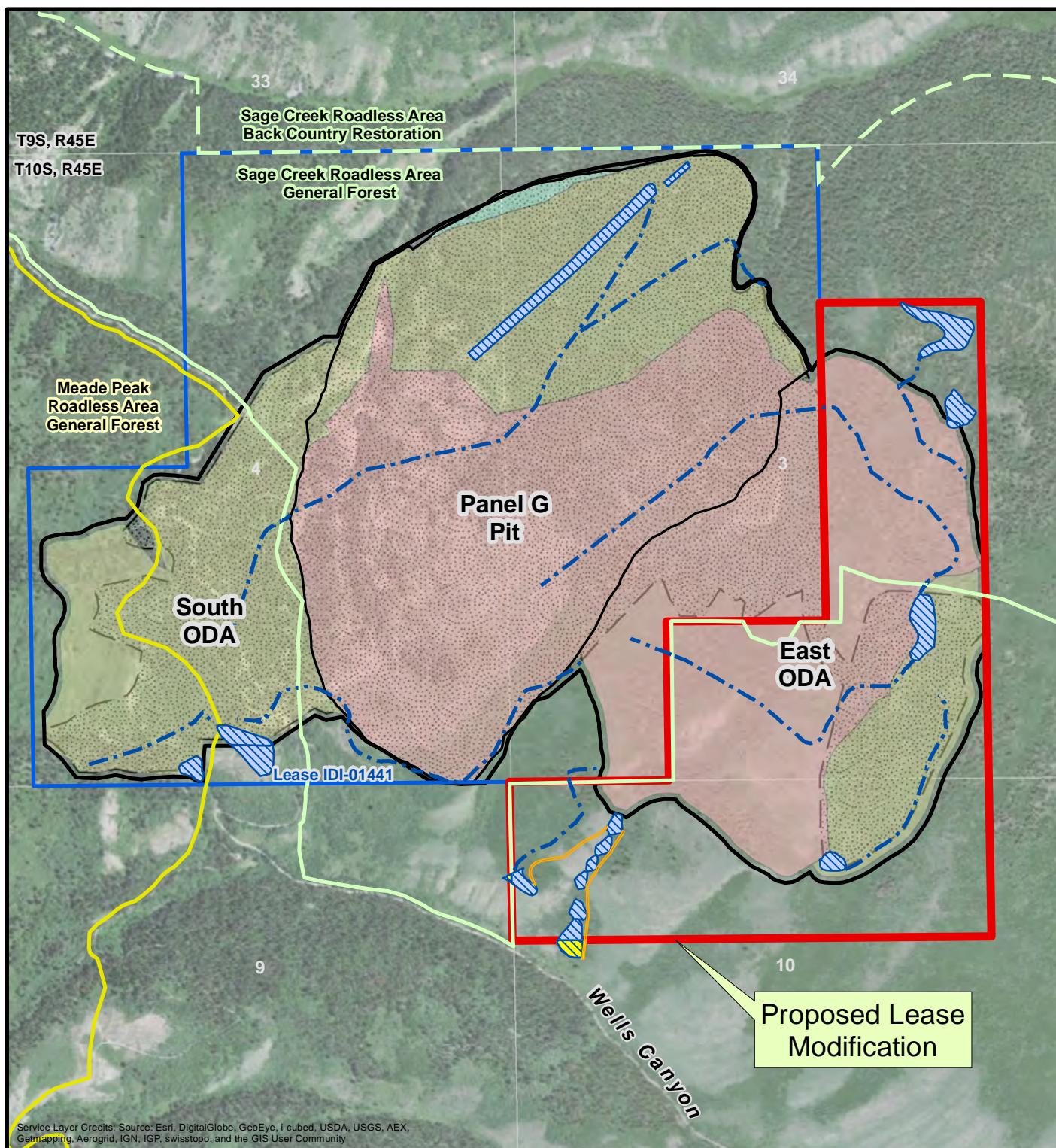
Construction of the cover system would occur in phases for concurrent reclamation. As overburden is placed in the East ODA, only those areas for which the GCLL and associated drainage features can be constructed prior to the onset of winter would be graded to the final 3:1 reclamation slope. Until that time, material would be left at angle of repose (i.e., not sloped) in order to minimize infiltration of snowmelt and stormwater. Final reclamation sloping would be done during the spring and summer months, so that the GCLL could be installed in the late summer and fall months. The cover system components would be staggered on the slope to allow placement of upslope GCLL with adequate material overlap onto lower slopes. During interim (e.g., seasonal) closure periods, a temporary geotextile would be placed on the filter geotextile to protect it from degradation due to ultraviolet (UV) light exposure. During the next phase of closure, the UV-protection geotextile would be removed to allow installation and overlap of the next phase of closure materials (Geosyntec 2013a).

A final design report for the GCLL would be prepared and approved by the Agencies prior to implementation of the Project. Installation of the GCLL would be coordinated with the Agencies each year.

Drainage System

A drainage system for the GCLL consisting of a drainage layer, lateral cover drainage, toe drains, and surface water drainage (stormwater channels and infiltration ponds) would drain water that has infiltrated the cover materials and transmit the water down slope. The drainage layer would consist of a minimum of six inches of crushed drainage rock (chert or limestone), with a filter geotextile placed between the drainage layer and cover material to reduce migration of fines. Depending on the design and performance needs, a cushion geotextile may be placed above the GCLL to provide puncture protection from the crushed rock drainage material (Geosyntec 2013a and **Appendix 2A**). Lateral drains, consisting of corrugated polyethylene pipes, would be installed at specific distances along the slope within the drainage layer. The pipes would connect to down drains or outlets at surface water management features on the cover surface. The lateral cover drainage would be sized to accommodate the anticipated flow, as determined through modeling of the cover layers (Geosyntec 2013a).

Toe drains would be installed along the toe of the slope to allow the water collected in the drainage layer to be conveyed to the stormwater management features away from the cover area. The toe drains would be constructed of drain rock separated from the overlying Dinwoody material and topsoil by a filter geotextile (Geosyntec 2013a and **Appendix 2A**).

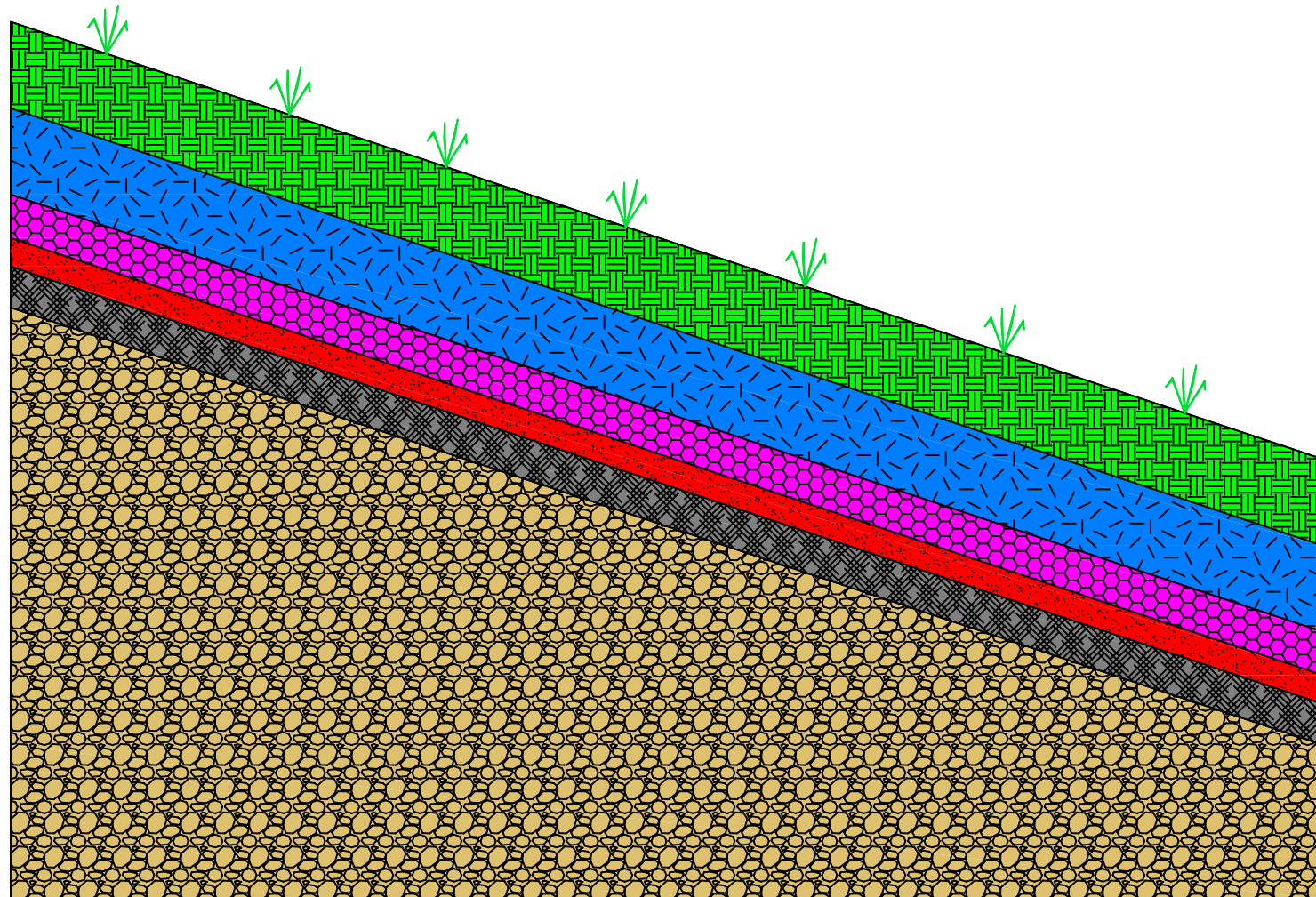



Explanation

- | | |
|--|--|
| Panel G Disturbance Boundary | Sage Creek Roadless Area |
| Panel G Pit Boundary | Meade Peak Roadless Area |
| Proposed Lease Modification Area (280 acres) | Proposed Stormwater Control Ditch (On Lease) |
| JR Simplot Lease | Proposed Stormwater Control Pond (On Lease) |
| Approved Panel G Disturbance | Proposed Stormwater Control Road Disturbance (On Lease) |
| GCLL (392.3 acres) | Proposed Stormwater Control Pond (Off Lease) |
| Topsoil Cover (266.6 acres) | Proposed Stormwater Control Road Disturbance (Off Lease) |
| Unreclaimed Highway | |



Figure 2.4-4
Proposed Action: Coverage Extent of the
Geo-synthetic Clay Laminate Liner (GCLL)
Panel F & G Lease/Mine Plan Modifications EIS



 12" Topsoil
 12" Dinwoody
 6" Drainage Layer (Crushed Chert or Limestone)




 Geo-synthetic Clay Laminate Liner (GCLL)
 Prepared Subgrade Surface (depth would vary)
 Run of Mine Overburden

Figure 2.4-5
 Geo-synthetic Clay Laminate Liner (GCLL) Cross Section
 Panel F & G Lease/Mine Plan Modifications EIS

2.4.4.3 Benefits of the GCLL

Compared to the geologic store and release cover, the GCLL cover would reduce the amount of meteoric water reaching the materials below the cover, thereby reducing the amount of water that would come into contact with the seleniferous overburden. Meteoric water that reaches the reclamation cover surface would either run off, be intercepted by vegetation, or infiltrate into the surface. A portion of the water that infiltrates would be stored in the active zone (i.e., the layers above the GCLL) and subsequently evaporate or taken up by vegetation and removed by transpiration. The infiltration can also move laterally downslope within and below the active zone. A percentage of the infiltrating water would migrate beyond the active zone through gravity overcoming the influence of atmospheric forcing (i.e., evaporation) and result in net percolation to the underlying ROM (OKC 2013).

Preliminary one and two dimensional modeling of the proposed GCLL cover system compared to the geologic store and release cover design (approved in the 2008 RODs) found net percolation rates were between 59 and 98 percent less for the GCLL than for the geologic store and release cover, as shown in **Table 2.4-3**.

Table 2.4-3 Comparison of Net Percolation Modeling by Slope Aspect between the Proposed GCLL and the Geologic Store and Release Cover

	NET PERCOLATION BY ASPECT (INCHES/YEAR)		
	NORTH	WEST	SOUTH
Geologic Store and Release Cover Predicted Net Percolation	0.7	0.6	0.6
GCLL Predicted Net Percolation	0.3	0.1	<0.1
Percent Reduction of Net Percolation by GCLL Compared to Geologic Store and Release Cover	59%	80%	98%

Source: OKC 2013, and OKC 2006 in Geosyntec 2013a

2.4.4.4 Operation and Maintenance of the GCLL

Once construction is completed, operation and maintenance requirements of the GCLL would be limited. Lateral drains and down drains may require routine maintenance to maintain flow. The surface of the area where the GCLL is installed would be routinely inspected for erosion of the surface layers to assure that the GCLL or drain layer are not exposed.

The GCLL would be susceptible to damage from deep rooted species growing on the reclaimed surface of the area covered by the GCLL. The area covered by the GCLL would be revegetated with grasses and forbs, and would never be allowed to become revegetated by deep rooted tree and shrub species. Consequently, the area covered by the GCLL would be monitored in perpetuity and be maintained free of deep rooted tree and shrub species.

2.4.5 On- and Off-Lease Stormwater Control

Once the bentonite component of the GCLL becomes hydrated, the bentonite granules swell, effectively closing voids. This provides the GCLL with low permeability and inhibits percolation of water. Consequently, water would be expected to flow through the drainage layer, collect in drainage pipes, and outlet at surface control features thereby increasing the surface stormwater volume. The Proposed Action includes an estimated 10.3 acres of stormwater control features to address the drainage layer volume and surface runoff. Of that area, 9.6 acres would be on-lease or within the proposed lease modification area and 0.7 acres would be off-lease. The overall stormwater control features would include 13 ponds (three of them fully contained within East ODA boundaries), two infiltration basins on the reclaimed limestone within the pit boundary, ditches, and associated road disturbance as conceptually presented in **Figure 2.4-4**. These features have been conservatively designed and sized to manage 100 percent runoff from the GCLL that would result from a 100-year, 24-hour storm event (Geosyntec 2013a). Lateral cover drains (described in **Section 2.4.4**) would discharge to the surface water drainage system. Should the Proposed Action be selected, the preliminary stormwater plan would be further refined, with features more fully designed and engineered, and submitted for agency review and approval. Off-lease stormwater controls would be authorized through a SUA.

2.4.6 Relationship of Approvals for Proposed Action Components

Implementation of the proposed ore conveyor system between Panel F and the mill would not be contingent upon approval of modifications to the lease and M&RP for Panel G; however, should the BLM and USFS approve the conveyor system either with or without approval of the Panel G modifications, Simplot would evaluate the economic viability of implementing the conveyor system at that time. In the event the conveyor is approved by the Agencies, but not constructed by Simplot due to economic considerations, Simplot could still opt to install the 25 kV power line, but on poles rather than attached to the conveyor. The power line would be located along the haul road as previously approved by the 2008 RODs, except it would follow the conveyor route between the proposed stockpile area and the point where the conveyor route joins the haul road. The power poles would range in height from 35 to 60 feet and have an average estimated span of 250 feet. This would be less disturbance than would result from the support bents for the conveyor in this area, which would be spaced at 120-foot intervals and range in height from 15 to 73 feet.

2.4.7 Proposed Disturbance

This EIS analyzes impacts of the Proposed Action resulting from new disturbance to previously undisturbed areas. The amount of disturbance from the Proposed Action is summarized by Project component in **Table 2.4-4**. For purposes of this analysis, long-term disturbance is defined as disturbance that would not be reclaimed until completion of active mining and/or activities associated with active mining.

2.4.8 Reclamation of Disturbed Area and Financial Assurances

Reclamation specified by the currently approved M&RP includes shrubs and trees to be seeded or planted in clusters where they are most likely to establish and where there are no concerns relative to the integrity of the overburden covers or potential selenium uptake. Reforestation of reclaimed surfaces would not be implemented in areas covered by the GCLL in order to maintain

its integrity. A seed mix approved by the USFS would be applied during reclamation. All other disturbed areas would be reclaimed in accordance with the 2008 RODs.

Under its regulatory authority and prior to allowing Simplot to start Project ground disturbing activities, the BLM would require Simplot to post an actual cost reclamation performance bond that considers the cost of complying with all permit and lease terms including royalty and reclamation requirements (43 CFR 3504.50). The bond would ensure that adequate funds are available to the federal government to close and reclaim the Project in the event that Simplot is unable or unwilling to fulfill its reclamation responsibilities. This bond amount would be in addition to that already posted for the existing and currently permitted operations at Smoky Canyon Mine. Reclamation performance bonds are calculated according to BLM policy regarding bond requirement and calculation guidance for phosphate mining operations (BLM 2013). The ROD would describe the methodology to be used to calculate the performance bond amount for the Project. The calculation would cover the maximum reclamation liability during the life of the Project or the period of the bond. The bond for the mine is managed adaptively and can be increased if or as unforeseen issues arise. Periodic review and recalculation of the bond would occur, and any changes incorporated into the reclamation bond instrument, to account for factors such as inflation/deflation of fuel costs, equipment rental rates, wages, and materials. A similar actual-cost bond would also be required by the USFS for areas of Project disturbance permitted by SUAs (36CFR 251.56(e)).

Table 2.4-4 New Disturbance under the Proposed Action

PROPOSED ACTION COMPONENT	DISTURBANCE (ACRES) ¹			
	ON EXISTING LEASE(S)	LEASE EXPANSION AREA	OFF LEASE - SUA REQUIRED ²	TOTAL
Panel F Ore Conveyor System – New Disturbance	1.3	N/A	6.8	8.1
Panel G East ODA Expansion Area	22.3	108.7	0	131.0
Panel G South ODA	20.0	N/A	0	20.0
Stormwater Controls (outside Panel G disturbance area)	1.6	8.0	0.7	10.3
TOTAL	45.2	116.7	7.5	169.4
New Disturbance within Sage Creek IRA	24.0	52.4	<0.1	76.5
New Disturbance within the Meade Peak IRA	19.4	0	0	19.4

¹Includes only acreage of new surface disturbance and not redistribution of previously reclaimed areas. N/A – Not Applicable

²Off-lease disturbance acreage includes only those areas that would continue to be off lease under the Proposed Action.

2.5 ENVIRONMENTAL PROTECTION MEASURES COMMON TO ALL ACTION ALTERNATIVES

Environmental protection measures (EPMs) described in the 2007 FEIS and required by the 2008 RODs would continue to be implemented. EPMs specific to the Proposed Action and Action Alternatives for this Project would include the following:

2.5.1 Cultural Resources (including Paleontological Resources)

The proposed new disturbance areas for the Proposed Action and Action Alternatives were inventoried for cultural resources during recent baseline surveys. Reports on these investigations, including descriptions of any discovered sites or cultural materials, were provided to the regulatory agencies. SHPO consultation and concurrence on site evaluations has been received by the USFS for all inventoried areas.

If unanticipated cultural materials, historic sites, or vertebrate macrofossils are encountered during mining, the USFS and the BLM would be notified, and operations would be halted in the vicinity of the discovery until inspected by a qualified agency representative and a mitigation plan developed if determined necessary. At the discretion of the USFS or BLM, vertebrate macrofossils would be avoided for a length of time that is reasonable to allow Agency personnel to conduct field surveys and determine the significance of the fossils.

2.5.2 Air Quality

Dust generated from Project activities would be controlled with dust suppressant water applied by water trucks. Dust suppressing chemicals such as magnesium chloride and calcium chloride may also be used as needed.

2.5.3 Soil

Soil resources in the proposed disturbance areas have been described with baseline surveys. Suitable topsoil and growth medium from disturbed areas would be salvaged and stockpiled for use in reclamation. Soil stockpiles would be protected from erosion by seeding and establishment of short-term vegetation cover. Reclamation of disturbed areas that are no longer required for active mining operations would be conducted concurrent with other mining operations.

2.5.4 Vegetation

Timber would be cruised by the USFS and then harvested from proposed disturbance areas as directed by the USFS. Simplot would purchase the timber at the market value appraised at the time of harvest. Small brush and slash would be incorporated in the topsoil when it is salvaged.

Reclamation earthwork would be timed to ensure that no large areas of untreated lands are exposed during the winter months. Revegetation of disturbed areas would be conducted during reclamation activities by seeding and planting with the vegetation species mix approved by the USFS. Seeding would proceed no later than the first fall after earthwork is complete.

Revegetation would be conducted to stabilize reclaimed surfaces with perennial vegetation communities and restore a post-mining land use for multiple use management. Livestock grazing in reclaimed areas would be controlled until the areas have become stabilized and are deemed ready for grazing by the USFS.

In order to control and prevent the spread of noxious weeds, Simplot would comply with guidelines established by the USFS. This includes cleaning all off-road vehicles prior to entering and re-entering the Project Area and using only certified weed-free seed, mulch, straw bales, etc.

2.5.5 Surface and Groundwater

As required by the 2008 RODs, Simplot would continue to implement BMPs for erosion, sedimentation, and selenium control that would also apply to the design, construction, operation, and reclamation of this Project. Those BMPs and the following EPMs have been developed to reduce the types and severity of impacts to surface water and groundwater that have been experienced in the past with previous phosphate mining operations.

Surface Water

Drainage and diversion channels would be constructed to divert run-on water around disturbance areas and collect runoff from disturbed areas to route it to settling ponds and other sediment control features. Runoff from disturbed areas would be directed to sediment ponds to contain sediment in the runoff water. Sediment ponds would be designed and maintained to provide retention for the runoff from the 100-year, 24-hour storm event. These features are described in **Sections 2.4.1.2 and 2.4.5.**

The ponds would be used to collect stormwater runoff and snow melt runoff exclusively; no other waste streams would be allowed to enter the ponds and/or commingle with this runoff. Simplot would also minimize the potential for dissolved constituents that may be present in this stored runoff from entering area streams by minimizing the hydraulic connection between the ponds and surface water.

While these ponds would not often discharge, there would be no prohibition to them doing so on occasion under Simplot's existing stormwater permit. When discharge does occur, suspended solids would be reduced in the discharged water, compared to the incoming concentrations, due to settling in the ponds. To control any such discharges, all ponds would be designed with stable spillways so that discharge does not erode the spillways or instigate structural failure of the ponds. Discharges would be sampled and assessed for contaminants of potential concern (COPCs) under the current SWPPP.

Surface water would be monitored in accordance with the requirements of the Agency-approved monitoring plan.

Groundwater

Stormwater would be managed to reduce or eliminate contact with ROM. During construction of the East ODA, material would be left at angle of repose (i.e., not sloped) in order to minimize infiltration of snowmelt and stormwater. Once the slope is covered with a GCLL, runoff and sediment control facilities would be located off the ODA to the extent feasible in order to protect the reclaimed slope from erosion and damage related to heavy equipment use.

Stockpiled areas of snow would be controlled and placed in areas to reduce infiltration or mixing of snow or snow melt into/with external overburden to the extent practicable.

Seleniferous overburden would be mined and disposed of in a timely manner to reduce exposure of this material to surface weathering and oxidation, the process that liberates soluble selenium

compounds. Surface area of seleniferous overburden fills would be reduced by design to the extent practicable to limit the amount of water infiltration and potential release.

Groundwater would be monitored in accordance with the requirements of the Agency-approved monitoring plan.

Adaptive Management

An Adaptive Management Plan (AMP) (**Appendix 2B**) has been developed to effectively address any potential water quality management issues that may occur as a result of the Project. The AMP establishes specific contingencies and practices in the event that monitoring shows exceedance of numeric water quality standards for various constituents. The AMP would help ensure that the quality of surface water and groundwater downstream and down gradient of the Panels F and G modification areas would be protected to meet applicable water quality standards, both during operations and after reclamation, through the use of adaptive management.

2.5.6 Wildlife and Aquatics

Biological surveys would be conducted in areas planned for disturbance to identify any active nests for bird species. Avoidance plans would be developed as necessary before these areas are disturbed.

2.5.7 Inspections, Records, Monitoring, and Final Designs

During operations, daily inspections would be made by mine supervisory staff to ensure activities are conducted in compliance with conditions of approvals, applicable permits, and regulations. Records of these observations would be maintained at the mine.

Regular SWPPP inspections would be conducted to verify plan compliance and detect any conditions requiring modification or repair. Maintenance and repair actions would be documented in mine records.

Samples of stormwater, groundwater, soil, sediment, aquatic biota, vegetation, and surface water would be taken by mine staff and contractors as required by permits and conditions of approvals.

The BLM and USFS generally conduct mine inspections on a monthly or more frequent basis in order to determine compliance with M&RPs and SUAs.

The current M&RP and monitoring plans would be updated as applicable to include actions needed to ensure the long-term stability and functionality of the GCLL.

2.6 ALTERNATIVES TO THE PROPOSED ACTION

Two Action Alternatives to the Proposed Action are described in the following subsections. Under both of the Action Alternatives, the Panel F ore conveyor system and South ODA portions of the Project would be the same as described for the Proposed Action in **Sections 2.4.1** and **2.4.2**. Differences between the Action Alternatives and the Proposed Action include the type of cover that would be used over seleniferous overburden in the Panel G pit and East ODA and the consequent revegetation of the covered areas; the size of the lease expansion area; the size and composition of disturbance within the East ODA; and the size and location of stormwater control features.

2.6.1 Alternative 1: Proposed Action with Mixed Cover

Under Alternative 1, the proposed lease modification area, East ODA disturbance area, and associated stormwater controls would be the same as described for the Proposed Action; however, a mixed cover would be used to cover the seleniferous overburden in the Panel G pit and East ODA (**Figure 2.6-1**).

2.6.1.1 Mixed Cover

During reclamation, an area of approximately 143 acres containing the seleniferous footprint in the expanded East ODA would be covered with a GCLL. Aside from the amount of acreage covered by the GCLL, all other aspects of the GCLL would be as described in **Section 2.4.4**. The geologic store and release cover, previously approved by the 2008 RODs and described in Section 2.6.1 of the 2007 FEIS, would be used to cover the previously approved disturbance in the East ODA and in the Panel G pit.

2.6.1.2 Rationale for Alternative 1

Compared to the Proposed Action, Alternative 1 would retain use of the previously approved geologic store and release cover and reduce the area that would be covered by the GCLL. Use of a GCLL for the expanded portion of the East ODA disturbance would provide additional protection from potential surface and groundwater impacts. Areas covered by the GCLL would not be allowed to reforest (**Section 2.4.8**), whereas the geologic store and release cover would be revegetated as described in the 2007 FEIS (Section 2.4) with grasses and forbs surrounding “islands of diversity” (defined as native forbs, shrubs, and trees that would be seeded or planted in clusters where they are most likely to establish and where there are no concerns relative to the integrity of the East ODA cover or potential selenium uptake). Diverse vegetation is important to the functioning of the geologic store and release cover, and would also provide the benefit of a more natural appearance after reclamation. Combining the use of the GCLL with the geologic store and release cover would provide for a more diverse revegetation community, including pockets of forested areas, while assuring water quality standards would continue to be met.

2.6.2 Alternative 2: Reduced East ODA Expansion with a Mixed Cover

Under Alternative 2, the proposed lease modification area and expanded East ODA disturbance area would be smaller than under the Proposed Action or Alternative 1 (**Figure 2.6-2**). A mixed cover would be used over the seleniferous overburden in the Panel G pit and East ODA.

2.6.2.1 Modification of Lease IDI-01441 for Expansion of the East ODA

The proposed lease modification area would total 240 acres; 40 acres less than that under the Proposed Action. Any future disturbance beyond that currently approved and/or contained under this alternative for the East ODA expansion and stormwater features would require additional and specific analysis under NEPA.

The modification to the lease under Alternative 2 would occur within Township 10 South, Range 45 East, Boise Meridian, Idaho, and specifically:

SE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 3

W $\frac{1}{2}$ SE $\frac{1}{4}$ Section 3

N $\frac{1}{2}$ NW $\frac{1}{4}$ Section 10

NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 10

2.6.2.2 Increase in East ODA Disturbance Area

The East ODA would be expanded by approximately 86 acres, which does not include the 70 acres of the previously approved topsoil storage area that would be relocated into the northeastern portion of the Panel G pit. The seleniferous footprint of the East ODA would be expanded into the area previously approved for the topsoil storage. Relocation of the topsoil storage would thus allow an overall reduction of approximately 46 acres (includes stormwater features) in the amount of disturbance within the originally proposed lease modification area under the Proposed Action and within the Sage Creek IRA.

2.6.2.3 Mixed Cover

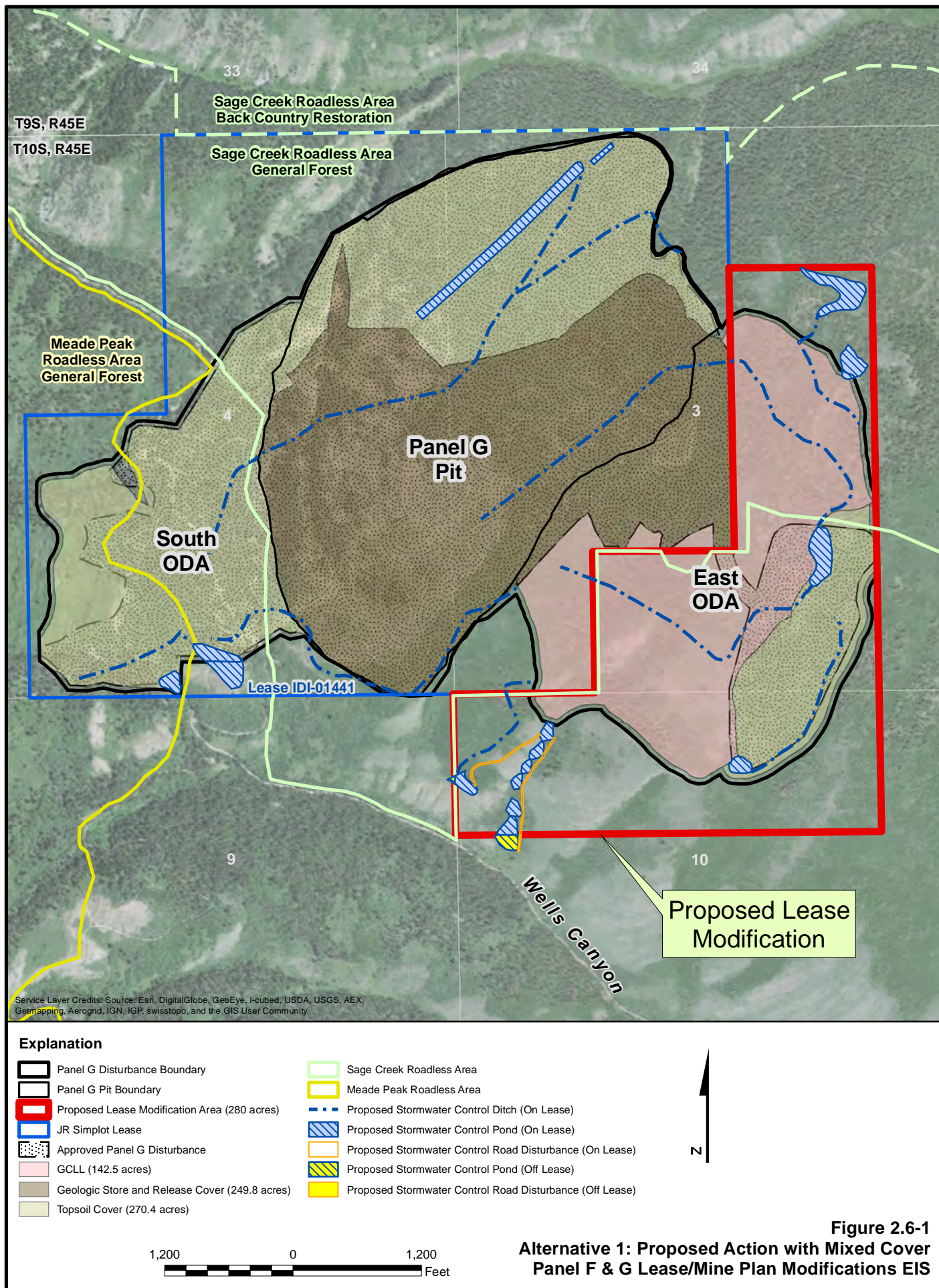
A mixed cover, as described in **Section 2.6.1.1**, would be used to cover all seleniferous overburden at Panel G. Approximately 138 acres would be covered by the GCLL and 257 acres of seleniferous overburden would be covered by the previously approved geologic store and release cover (**Figure 2.6-2**). As with Alternative 1, the geologic store and release cover would be used to cover the previously approved disturbance in the East ODA and in the Panel G pit. Aside from the amount of acreages covered, all other aspects of the GCLL and the geologic store and release cover would be as previously described. Under Alternative 2, the decision maker would have the option to increase the GCLL coverage to provide greater conservatism to the final decision.

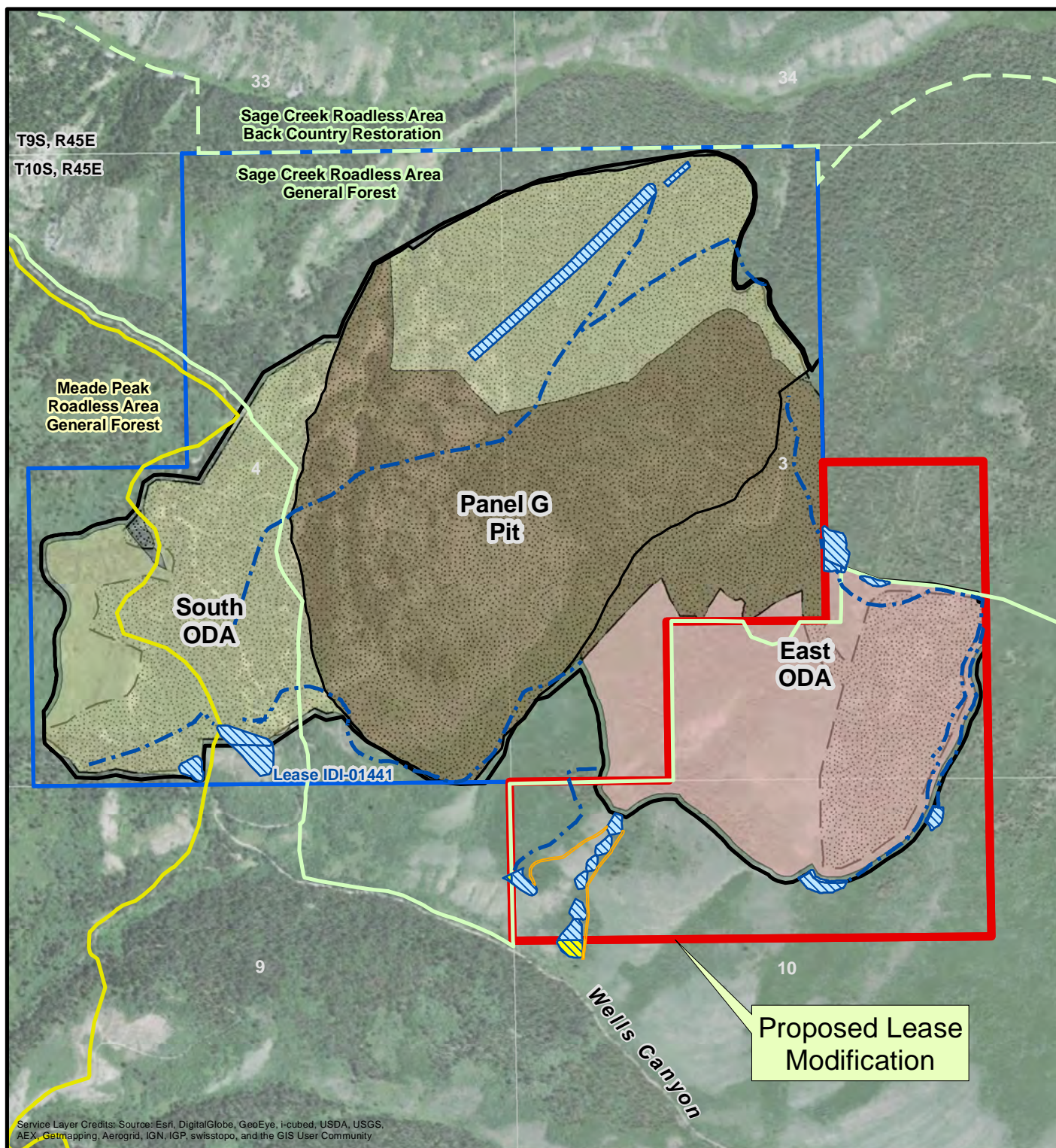
2.6.2.4 On- and Off-Lease Stormwater Control

Stormwater controls under Alternative 2 would generally be as described in **Section 2.4.5**; however, they would be located and configured differently from the Proposed Action and Alternative 1 (**Figure 2.6-2**). These features would result in approximately 9.1 acres of new disturbance, a reduction of approximately of 1.2 acres of stormwater control features as compared to the Proposed Action. Of the total, 1.6 acres would be on-lease, 6.8 acres would be in the lease modification area, and 0.7 acres would be off-lease.

2.6.2.5 Rationale for Alternative 2

Compared to the Proposed Action and Alternative 1, Alternative 2 would result in the smallest area of lease modification, the least new disturbance, the least disturbance within the Sage Creek Roadless Area (SCRA), and the smallest area covered by the GCLL. As described for Alternative 1 in **Section 2.6.1.2**, combining the use of the GCLL with the geologic store and release cover would provide for a diverse revegetation community, including pockets of forested areas, while assuring water quality standards would continue to be met. The area that would not be allowed to reforest (that covered by the GCLL) is minimized under Alternative 2.





Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Explanation

- | | |
|--|--|
| Panel G Reduced Disturbance Boundary | Sage Creek Roadless Area |
| Panel G Pit Boundary | Meade Peak Roadless Area |
| Proposed Lease Modification Area (240 acres) | Proposed Stormwater Control Ditch (On Lease) |
| JR Simplot Lease | Proposed Stormwater Control Pond (On Lease) |
| Approved Panel G Disturbance | Proposed Stormwater Control Road Disturbance (On Lease) |
| GCLL (138 acres) | Proposed Stormwater Control Pond (Off Lease) |
| Geologic Store and Release Cover (257.3 acres) | Proposed Stormwater Control Road Disturbance (Off Lease) |
| Topsoil Cover (222.6 acres) | |



Figure 2.6-2
Alternative 2: Reduced East ODA with Mixed Cover
Panel F & G Lease/Mine Plan Modifications EIS

2.6.3 No Action Alternative

Under the No Action Alternative, the decisions from the 2008 RODs would continue to govern development of the phosphate resources of Panels F and G, and the currently approved M&RP would be executed. The M&RP would remain unchanged and Lease IDI-01441 would not be modified. There would be no reduction in the duration of mining Panel G; however, Simplot estimates approximately 50 percent of the phosphate ore in Lease IDI-01441, previously considered economically recoverable, would not be mined because there is not sufficient storage area for the associated overburden/waste rock disposal external to the Panel G pit without expansion of the East ODA. Overall disturbance would remain essentially the same as that approved in the 2008 RODs. Ore mined from Panels F and G would continue to be delivered to the mill via haul trucks. The previously approved geologic store and release cover would be used for reclamation as described in the 2007 FEIS and approved by the 2008 RODs.

2.7 AGENCY PREFERRED ALTERNATIVE

The Agencies have identified Alternative 2: Reduced East ODA Expansion with Mixed Cover as the Agency Preferred Alternative for this Project because this alternative:

- Reduces the size of the proposed lease modification area by 40 acres.
- Reduces the amount of new surface disturbance by approximately 46 acres.
- Reduces the amount of disturbance within the Sage Creek IRA by approximately 47 acres.
- Includes a GCLL for the 138-acre expansion of the East ODA for additional protection of water resources, and allows for an increase in GCLL coverage in the final decision to provide greater conservatism.
- Includes use of the previously approved geologic store and release cover over approximately 257 acres, which would be protective of water resources and also provide a more natural appearance after reclamation.

The Agency Preferred Alternative would reasonably accomplish the purpose and need for the federal action, while giving consideration to environmental, economic, and technical factors. This action is responsive to public input for limiting the amount GCLL to be used and for reducing the amount of new disturbance within IRAs.

2.8 SUMMARY COMPARISON OF ALTERNATIVES

Table 2.8-1 provides a tabular summary and comparison of impacts from the components of the Proposed Action, Alternative 1, Alternative 2, and the No Action Alternative.

2.9 ALTERNATIVES ELIMINATED FROM DETAILED ANALYSIS

Scoping comments provided a number of alternatives to the Proposed Action for consideration (Table 1.7-2, under the heading of Alternatives to the Proposed Action); however, these alternatives were ultimately eliminated from detailed analysis. The suggested alternatives, and the reasons they were eliminated from further consideration, are as follows:

- More limited use of the GCLL. While the commenter did not provide a rationale for the suggested alternative, two Action Alternatives have been developed to analyze a more limited use of the GCLL and are described above in Section 2.6. It is not feasible to analyze an alternative that eliminates the use of the GCLL because current volume estimates of Dinwoody material (needed in greater volumes for the geologic store and release cover than for the GCLL) indicates there is an inadequate volume to execute that design over the proposed additional disturbance.
- No additional use of IRAs. Review of the area surrounding the yet to be developed Panel G pit indicates that there is not another logical area for the East ODA expansion. The only non-IRA area occurs in Wells Canyon, and would not be a feasible alternative location because it would require a large area of fill due to existing topography and the existing USFS road in that drainage would need to be relocated. However, Alternative 2: Reduced East ODA with Mixed Cover, does reduce the amount of proposed new disturbance within the SCRA IRA by approximately 45 acres.
- A land exchange to ensure no net loss of roadless areas. Surface disturbance under the Proposed Action would be within the General Forest, Rangeland, and Grassland theme of the Sage Creek and Meade Peak IRAs. The Idaho Roadless Rule does not prohibit mining-related disturbance such as the Proposed Action within areas of that theme. There is no requirement for “no net loss” to roadless values.
- Expansion of the conveyor system to Panel G. The conveyor system to Panel G alternative was analyzed in the 2007 FEIS. This previously analyzed route for the conveyor from Panel G would not be allowable under the established theme of the lands within the IRAs under the provisions of the current Idaho Roadless Rule. Simplot has not proposed a different route for a conveyor system between Panel G and F, such as along the currently approved haul road (considered economically infeasible at this time).
- A more limited area of mining of Panel G to keep the mine disturbance footprint limited to that approved by the 2008 RODs. This alternative is the No Action Alternative, which is analyzed in this EIS. As described in Section 2.6 under the No Action Alternative, the ODAs would not be expanded, and approximately half of the economically recoverable ore in Panel G would not be mined.
- Delay of mining Panel G until Simplot takes necessary remedial actions to clean up selenium contamination. Mining of Panel G was approved under the 2008 RODs and can commence as permitted, irrespective of ongoing remediation for selenium contamination.

Table 2.8-1 Alternative Comparison and Effects Summary

PROJECT COMPONENT OR RESOURCE		PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Project Component Acreages					
Panel F Ore Conveyor System New Disturbance Acreage		8.1	Same as Proposed Action	Same as Proposed Action	0
Panel F New SUA Acreage		6.8	Same as Proposed Action	Same as Proposed Action	0
Panel G Lease Expansion Acreage		280	Same as Proposed Action	240	0
East ODA Expansion New Disturbance Acreage		131.0	Same as Proposed Action	86.2	0
South ODA Expansion New Disturbance Acreage		20.0	Same as Proposed Action	Same as Proposed Action	0
Panel G GCLL Acreage		392.3	142.5	138.0	0
Panel G Geologic Store and Release Cover Acreage		0	249.7	257.3	As approved by 2008 RODs
Panel G Stormwater Control New Disturbance Acreage		10.3	Same as Proposed Action	9.1	0
Sage Creek IRA – New Disturbance Acreage	Panel F	1.3	Same as Proposed Action	Same as Proposed Action	0
	Panel G	75.2	Same as Proposed Action	27.9	0
	Total	76.5	Same as Proposed Action	29.2	0
Sage Creek IRA – Cover Acreage	GCLL	319.9	70.1	26.3	0
	Geologic Store and Release Cover	0	249.8	257.3	As approved by 2008 RODs
Meade Peak IRA New Disturbance Acreage – Panel G		19.4	Same as Proposed Action	Same as Proposed Action	As approved by 2008 RODs
Total New Disturbance		169.4	Same as Proposed Action	122.8	0

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Geology, Minerals, Topography, and Paleontology				
Panel F	No or negligible impacts to geology, minerals, topography, or paleontology.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved. However, only approximately half of the amount of ore from Panel G would be mined compared to the amount estimated in the 2007 FEIS.
Panel G	ODA expansion would result in long-term, major, and local impact. Potential for acid rock drainage (ARD) would be the same or less than described in 2007 FEIS.	Same as Proposed Action except a geologic store and release cover would be used to cover approximately 250 acres, and approximately 143 acres would be covered by a GCLL.	Same as Proposed Action except approximately 46 fewer acres would be disturbed, a geologic store and release cover would be used to cover approximately 257 acres, and 138 acres would be covered by a GCLL.	
Air Resources				
Panel F	424.0 tons of total annual emissions generated from conveyor. 4,832.5 tons of total annual emissions reduced through reduction in haul truck traffic due to the ore conveyor.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved. However, impacts to air resources may be reduced as the amount of ore mined would be approximately half that estimated in the 2007 FEIS.
Panel G	5,022.0 tons of total annual emissions generated.	Same as Proposed Action	About the same as the Proposed Action, although slightly less due to less overall new surface disturbance.	
Climate Change				
Panels F and G Combined	Reduction in haul truck traffic due to the ore conveyor would reduce the amount of carbon dioxide (CO ₂) by approximately 23,335 tons annually. The overall contribution to climate change would be negligible.	Same as Proposed Action	About the same as the Proposed Action, although slightly less due to less overall new surface disturbance.	Operations at Panels F and G would continue under the existing M&RP as presently approved. However, greenhouse gases (GHGs) generated may be reduced as the amount of ore mined would be approximately half that estimated in the 2007 FEIS.
Noise				
Panel F	No noticeable noise effects are anticipated at current residences along the Crow Creek Road.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to noise as described in the 2007 FEIS.
Panel G	Same as 2007 FEIS	Same as Proposed Action	Noise from equipment would be further away from sensitive receptors, which may slightly reduce the overall noise impacts from those described for the Proposed Action.	

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Water Resources				
Panel F	<u>Groundwater</u> : No additional impact to groundwater quantity or quality. <u>Surface Water</u> : New sources of disturbed-area runoff and sediments would be negligible.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to water resources as described in the 2007 FEIS.
Panel G	<u>Groundwater Quality</u> : Long term and minor to moderate improved effect from use of a GCLL, as compared to the 2007 FEIS. <u>Surface Water Quantity</u> : Proportional net change to base flows would likely be negligible. <u>Surface Water Quality</u> : Effect on selenium concentrations due to GCLL represents a long-term and minor to moderate improved effect. No additional surface water quality impacts due to sediment releases.	<u>Groundwater Quality</u> : Use of a mixed cover would result in almost double the recharge through the cover compared to the Proposed Action condition. More recharge would result in more groundwater flow (approximately 0.2 percent) to lower Deer Creek, Books Spring, and lower Crow Creek, compared to the Proposed Action. <u>Surface Water Quantity</u> : Same as Proposed Action. <u>Surface Water Quality</u> : The selenium criterion would continue to be met in both Deer Creek and Crow Creek near Deer Creek, but concentrations are predicted to be slightly greater than they would be under the Proposed Action.	<u>Groundwater Quality</u> : Same as Alternative 1. <u>Surface Water Quantity</u> : Same as Proposed Action. <u>Surface Water Quality</u> : The selenium criterion would continue to be met in both Deer Creek and Crow Creek near Deer Creek, but concentrations are predicted to be somewhat greater than they would be under the Proposed Action, and slightly greater than Alternative 1.	
Soils				
Panel F	8.1 acres of soils disturbance. All disturbance would be reclaimed.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to soils as described in the 2007 FEIS.
Panel G	Approximately 161 acres of soils disturbance. All disturbance would be reclaimed with exception of 10.3 acres of stormwater controls.	Same as Proposed Action	46 acres less surface disturbance than under the Proposed Action, which would result in slightly less overall impacts to soil resources compared to the Proposed Action or Alternative 1, but the types of impacts to soils would be the same.	
Vegetation				
Panel F	8 acres of disturbance, primarily aspen. All disturbance would be reclaimed.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to vegetation as described in the 2007 FEIS.

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Panel G	Main vegetation communities impacted: 92.3 acres of aspen would be disturbed. 33.5 acres of aspen/conifer would be disturbed. 22.7 acres of subalpine fir would be disturbed. All disturbance would be reclaimed with exception of 10.3 acres of stormwater controls; and the GCLL area would not be allowed to reforest.	Same as described under the Proposed Action except: Approximately 143 acres would be covered by the GCLL, which would only be revegetated with shallow-rooting species. Approximately 250 acres on lease would receive a geologic store and release cover, which could be reclaimed with deeper rooted species, resulting in a more natural vegetation community than under the Proposed Action.	Same as described under the Proposed Action except: 46 fewer acres would be disturbed. Approximately 138 acres would be covered by the GCLL, which would only revegetated with shallow-rooting species. Approximately 257 acres on lease would receive a geologic store and release cover, which could be reclaimed with deeper rooted species, resulting in a more natural vegetation community than under the Proposed Action and Alternative 1.	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to vegetation as described in the 2007 FEIS.
Wetlands				
Panel F	There would be no impacts to WOUS, including wetlands. Route would follow present haul road, using existing creek crossing.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to wetlands as described in the 2007 FEIS.
Panel G	There would be no impacts to WOUS, including wetlands.	Same as Proposed Action	Same as Proposed Action	
Wildlife				
Panels F and G Combined	The disturbance of 170 acres of wildlife habitat would impact gray wolf habitat, migratory land birds, big game, and predators. The disturbance of 158 acres of forest habitat would impact Canada lynx habitat and potential roost trees for bald eagles. It would also affect the flammulated owl, northern three-toed woodpecker, great gray owl, North American wolverine, northern goshawk, other raptors, and upland game birds. Preliminary determination of May Affect, but Not Likely to Adversely Affect Canada lynx. Impacts to transient lynx would be site-specific, short-term, and minor.	Same as Proposed Action	Same as Proposed Action, except approximately 46 fewer acres of habitat impacts would occur.	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to wildlife as described in the 2007 FEIS.

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Panels F and G Combined (Continued)	<p>If the species is listed as a Candidate, preliminary determination of May Affect, but Not Likely to Adversely Affect greater sage-grouse.</p> <p>Overall, potential impacts to wolverines and their prey species would be site-specific, short- to long-term, and negligible to minor.</p> <p>Approximately 13 acres of greater sage-grouse and Columbian sharp-tailed grouse habitat would be disturbed.</p> <p>Approximately 56 acres of marginal unoccupied habitat for boreal owls would be disturbed.</p> <p>Indirect site-specific, long-term, and negligible to minor impacts to boreal owls, flammulated owls, and Townsend's big eared bat.</p> <p>No impacts to spotted bat, peregrine falcon, and boreal toad. Impacts to bald eagles and amphibians and reptiles would be site-specific, short-term, and negligible.</p> <p>Impacts to Columbian sharp-tailed grouse, great gray owls, and three-toed woodpeckers would be site-specific, short- to long-term, and negligible to minor.</p> <p>Impacts to northern goshawks are expected to be site-specific, long-term, and minor to moderate.</p> <p>Neither peregrine falcon individuals nor suitable habitat for this species is known to occur within the analysis area, thus there would be no impact to this species.</p> <p>Impacts to gray wolves would be site-specific, short-term, and negligible to minor.</p> <p>Impacts to migratory birds, including neotropical landbirds, would be site-specific, short-term, and minor to moderate.</p> <p>Overall impacts to big game are expected to be site-specific, short- to long-term, and minor.</p> <p>Impacts to predators, raptors, and upland game birds would be site-specific, short-term, and negligible to minor.</p> <p>Implementation of the GCLL would reduce the potential for selenium uptake by wildlife, and may reduce or increase foraging areas (depending on the species) as the GCLL area would not be allowed to reforest.</p>	Same as Proposed Action	Same as Proposed Action, except approximately 46 fewer acres of habitat impacts would occur.	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to wildlife as described in the 2007 FEIS.

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Fisheries and Aquatics				
Panel F	No or negligible impact to fisheries and aquatics.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to fisheries and aquatics as described in the 2007 FEIS.
Panel G	Approximately 8.5 acres of aquatic influence zones (AIZs) would be disturbed.	Same as Proposed Action	Alternative 2 would result in approximately 46 less acres of disturbance, including 1.8 acres less disturbance to AIZs. The location of the disturbance would be within the footprint of the Proposed Action. Overall, impacts to fisheries and aquatics would generally be the same as described for the Proposed Action.	
Grazing				
Panel F	Approximately 8.1 acres of grazing allotments would be disturbed.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to grazing as described in the 2007 FEIS.
Panel G	Approximately 161.6 acres of grazing allotments would be disturbed. Utilization of the GCLL on 392 acres may result in a permanent increase in forage, as the GCLL area would not be allowed to reforest.	Impacts to grazing would be the same as described under the Proposed Action, except only 138 acres would be covered by the GCLL. Approximately 250 acres would be covered by a geologic store and release cover and revegetated with deeper rooted species, so that in the long term the amount of forage would not be increased as much as under the Proposed Action.	Impacts to grazing would be the same as described under the Proposed Action except there would be 46 acres less disturbance, which would reduce the adverse impacts to the Deer Creek allotment. The size of the area that would be covered by the GCLL would be approximately 254 acres of the area to be covered by GCLL under the Proposed Action would instead receive a geologic store and release cover and revegetated with deeper rooted species, so that in the long term the amount of forage would not be increased as much as under the Proposed Action.	

PROJECT COMPONENT OR RESOURCE		PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Recreation and Land Use					
Panels F and G Combined – Recreation		No direct impacts to developed recreation. Direct impacts to dispersed recreation due to reduced acreage available for recreation. Indirect impacts to recreation from noise, activity, and visual impacts.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to recreation and land use as described in the 2007 FEIS.
Panel F – Land Use		Approximately 7.7 acres of disturbance to Management Prescription 5.2 and aspen-conifer timber contributing to the allowable sale quantity.	Same as Proposed Action	Same as Proposed Action	
Panel G – Land Use		280-acre reduction in Management Prescription 6.2. Approximately 129 acres of suitable timber would be disturbed. Approximately 392 acres covered by the GCLL would be permanently eliminated from future contribution to the allowable sale quantity.	The lease modification area, ODAs expansion disturbance, changes to management prescriptions, and impacts to allowable sale quantity (ASQ) would be the same as described for the Proposed Action. Use of a geologic store and release cover on approximately 250 acres would result in less of a long-term adverse impact on suitable timber because the reseeded and planting islands of diversity may eventually lead to growth of suitable timber, whereas the area covered by the GCLL would never be allowed to reforest.	The lease modification area would be 40 acres less than that under the other Action Alternatives, so that fewer acres would be converted from Prescription 6.2 to Prescription 8.2. Disturbance associated with expansion of the East ODA would be 46 acres less than the other Action Alternatives, resulting in fewer acres subject to adverse impacts to suitable timber and ASQ. Use of a geologic store and release cover on approximately 257 acres under Alternative 2 would result in impacts as described for Alternative 1.	
Inventoried Roadless Areas					
Panel F – Sage Creek IRA		1.3 acres of new disturbance within General Forest Theme; in compliance with Idaho Roadless Rule. Negligible or no impacts to wilderness attributes and roadless characteristics.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to inventoried roadless areas as described in the 2007 FEIS.
Panel G	Sage Creek	76.5 acres of new disturbance within General Forest Theme; in compliance with Idaho Roadless Rule. Negligible to minor impacts to wilderness attributes and roadless characteristics.	Same as Proposed Action	29.2 acres of new disturbance	

PROJECT COMPONENT OR RESOURCE		PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Panel G	Meade Peak	19.4 acres of new disturbance within General Forest Theme; in compliance with Idaho Roadless Rule. Negligible to minor impacts to wilderness attributes and roadless characteristics.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to inventoried roadless areas as described in the 2007 FEIS.
Visual and Aesthetic Resources					
Panel F		Approximately 8.1 acres disturbed in Modification visual quality objective (VQO). Project-related disturbance would be viewed in context of, and may not be distinguishable from, other surrounding mining activities. Project would be visible from one of the observation points from the 2007 FEIS.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to visual and aesthetic resources as described in the 2007 FEIS.
Panel G		The ODA expansion areas are located in both Modification and Partial Retention VQOs. Project-related disturbance would be viewed in context of, and may not be distinguishable from, other surrounding mining activities. Project would be visible from one of the observation points from the 2007 FEIS. Because the GCLL would not be allowed to reforest, that portion of the Project would never resemble its pre-disturbance vegetation scheme. Overall impacts to visual resources from the Panel G portion of the Proposed Action would be minor as viewed in the context of other existing mining activities, which were found by the 2007 FEIS to have a major impact on area visual resources, to not meet VQOs for the area, and to result in low scenic integrity.	The acreage and the height of the disturbance under Alternative 1 would be the same as the Proposed Action. Overall impacts to visual resources would be somewhat less than those described for the Proposed Action because the geologic store and release cover would be substituted for some of the GCLL, resulting in more natural looking reclamation consistent with surroundings.	The height of the disturbance under Alternative 2 would be the same as described for the Proposed Action, but there would be 46 fewer acres disturbed. Less disturbance would be visible from the viewpoint along Trail 103, but a GCLL would be used to cover the area most visible from that viewpoint. The overall impacts to visual resources would be less under Alternative 2 compared to the other action alternatives because fewer acres would be disturbed, fewer acres would be covered with a GCLL, and the disturbance area visible from the Trail 103 viewpoint is smaller.	

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Cultural Resources				
Panel F	No impacts – No cultural resources located along the ore conveyor system route.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to cultural resources as described in the 2007 FEIS.
Panel G	Two historic sites in the Panel G portion of the Project Area are not eligible for the NRHP, and do not require further management. Impacts to heritage resources and values would be negligible to minor as disturbance would affect grazing allotments and exercise of Treaty Rights.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to cultural resources as described in the 2007 FEIS.
Native American Concerns and Treaty Rights Resources				
Combined Panels F and G	No change in land ownership; however, the Project Area would not be available to support Treaty Rights. No Tribal historical or prehistoric archeological sites, no occurrences of rock art, and no sacred sites have been identified in the Project Area. Temporary negligible impact to access; negligible to minor impacts on nearby ceremonial or traditional use sites.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to Native American concerns and Treaty Rights resources as described in the 2007 FEIS.
Transportation				
Combined Panels F and G	Would not impact any public access routes.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to transportation as described in the 2007 FEIS.
Social and Economic Resources				
Combined Panels F and G	Mine employment would be unchanged. Property values along Crow Creek Road may be affected by perceived changes in the environment; however, the prediction of value changes is beyond the scope of the EIS. Would result in continued economic benefit to Bannock, Caribou, Power, and Lincoln counties. Impacts to the 27-county area would be the same as described in the 2007 FEIS.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved. Impacts to social and economic resources would be as described in the 2007 FEIS except royalties paid for mining of Panel G would be reduced because approximately half of the ore would not be mined.

PROJECT COMPONENT OR RESOURCE	PROPOSED ACTION	ALTERNATIVE 1: PROPOSED ACTION WITH MIXED COVER	ALTERNATIVE 2: REDUCED EAST ODA WITH MIXED COVER	NO ACTION ALTERNATIVE
Environmental Justice				
Combined Panels F and G	The Project would not cause disproportionately high and adverse effects on any minority or low-income populations.	Same as Proposed Action	Same as Proposed Action	Operations at Panels F and G would continue under the existing M&RP as presently approved with impacts to environmental justice as described in the 2007 FEIS.